

## The Welsh clearwing in The Trossachs

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The clearwings (Sesiidae) are elusive day flying moths. This is particularly true of the Welsh clearwing *Synanthedon scoliaeformis*, a Red Data Book species the larvae of which feed on the inner bark of old and often isolated birch trees with trunks exposed to sunlight. As its name suggests, the species was discovered in Wales, near Llangollen in 1854 but was presumed lost from the end of the nineteenth century until its rediscovery in 1988 near Dogellau in Merionethshire. Subsequent surveys have shown that it occurs in ten 10km squares in the foothills of Snowdonia in Merionethshire and adjacent Montgomeryshire (Graham, 2003). The species also occurs in Scotland. It was discovered on the shores of Loch Rannoch in 1867 and this remains a stronghold. Colonies have also been reported at a site in Sutherland (Bland, 1991); in Glen Affric and Glen Moriston (Barbour & Bland, 1996) and birches with exit holes were also found in the Trossachs in 1996, 1997 and 1998 (Bland, 2006).

Because the adult is so elusive, the most effective way of locating it has traditionally been to look for the 5mm exit holes left in the lower trunk of birch trees after the emergence of adult moths. Care has to be taken not to mistake the exit hole with those of the common beetle *Rhagium mordax*. The moth caterpillar excavates in living wood while the beetle larvae usually excavates in dead wood although often in the same tree as the moth. The beetle larvae produces copious quantities of orange frass that accumulates below the hole while the moth produces a hole that is for exit only, does not have associated frass and often has the visible remains of a pupa case inside it. The sawfly *Ametastgia equiseti* that produces exit holes of 2 to 3.5 mm diameter and the Yponomeutid moth, *Argyresthia glaucinella*, that produces red/brown frass but no exit holes have also been suggested as possible sources of confusion (Graham, 2003)

More recently pheromone lures have been developed for many clearwing species and that for the Welsh clearwing was successfully field tested in Wales (Wander & Clifton, 2005). The pheromone has now been used to confirm the occurrence of the species in the Trossachs.

The pheromone is supplied in the form of an impregnated rubber bung with the recommendation that it is placed in a small net bag with a loop of string from which it can be suspended. Prepared in this way the lure can be stored at -20°C in a sealed plastic

container for several years (Wander & Clifton, 2005). If used as a component of a trap or left unattended, pheromones can keep males from fertilizing females and this would have been a wholly inappropriate approach to the study of a moth as rare as the Welsh clearwing. For this reason, the author stayed with the lure while it was suspended from low branches of birch trees that were selected either because they had evidence of moth exit holes or because they appeared suitable for the moth (i.e. they were mature and located such that the trunk was in the sun). The lure was tested for 30 minutes at each site after which it was removed. The first moth seen was caught, photographed and released (Fig. 1). All other moths arriving at the lure were recorded without capture and the location was recorded as a ten figure Ordnance Survey map reference using a global positioning navigational aid.

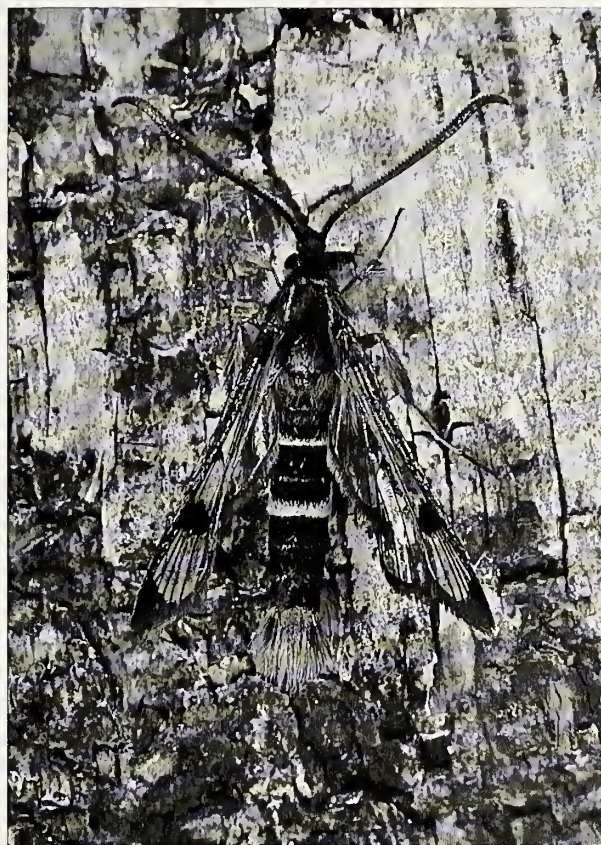


Fig. 1. Welsh clearwing *Synanthedon scoliaeformis* trapped in The Trossachs

During the winter of 2004, the author located a tree in the north-western Trossachs with possible Welsh clearwing exit holes that was probably the same tree as that found in 1996 (Bland, 2006). A pheromone lure at this tree in July 2005 attracted no clearwings. However, after successful field tests at a known site beside Loch Rannoch, the lure was tried again at the same tree on 6<sup>th</sup> July, 2006. It attracted two Welsh clearwing within 30 mins and one of these tried to mate with the lure.

Also on 6<sup>th</sup> July, in an attempt to ascertain whether the moth occurred more widely within the Trossachs, the lure was tested at six other isolated birch trees that were chosen because they were mature and their trunks



were exposed to sunlight. Welsh Clearwings were attracted to the lure at two of these sites. One had possible clearwing exit holes but the other, which attracted a single moth within 15 minutes and was 1.75km from the original site, had no evidence of clearwing exit holes; neither did any other trees in its immediate vicinity. This perhaps indicates that male Welsh Clearwing range widely when seeking virgin females. The number of sites at which the Welsh Clearwing was observed in a single day in the Trossachs suggest that the moth may occur at other suitable sites within central Scotland.

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Mating cluster behaviour in the solitary bee *Colletes succinctus* (Linn.), Hymenoptera, Colletidae

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In August 2005, during a botanical freshwater survey of the Water of Dye, a tributary of the River Dee at the Bridge of Bogendreip, Kincardineshire (NGR: NO 662910), our attention was drawn to the behaviour of a population of solitary bees. These bees were occupying plots of soil in the garden of Bogendreip Farm (Fig 1). Only in the last few years had Mr. Watt observed the bees and not previously, in his more than fifty years of farm occupancy. The bees were subsequently identified as *Colletes succinctus* (Linn.).

The bees had colonized extensive areas of sandy soils adjacent to the farmhouse, in which hundreds of individual nests formed two main “villages” with several adjacent smaller areas of colonization (Fig 1).

We observed that the bees were displaying a form of aggregation behaviour during which a group of at least 6-8 individual males would surround an emerging female, forming a spherical structure (Fig 2). These groups of males assembled around a female for a period of 20-60 seconds, until presumably a successful mating had occurred, after which cluster formation would collapse, only to quickly reform, besieging another available female elsewhere in the population. The bees appeared so preoccupied with their activity that they remained unperturbed by our presence.

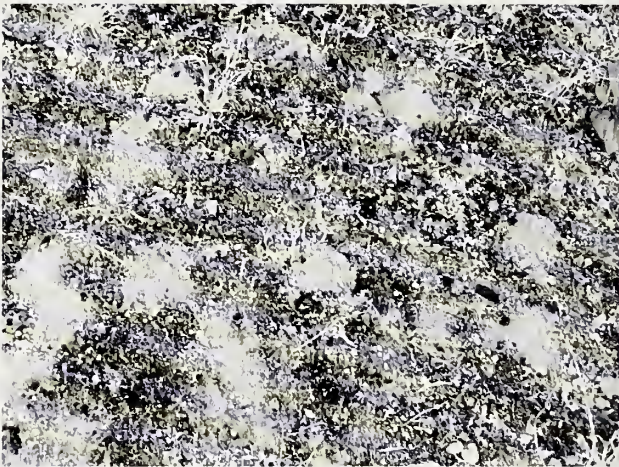


Fig. 1. Burrows of *Colletes succinctus* population.

To confirm species identification a small sample was collected in 2006 when the population reappeared. The identity was established from a male specimen whose morphological characters, including features in the genitalia, match those of *Colletes succinctus*, the girdled *Colletes* (Saunders, 1896; Step, 1946). This is a common species on heaths and commons and usually forages on heather.



Fig. 2. Mating cluster in *Colletes succinctus*.

A related species, *Colletes hederæ* (Schmidt & Westrich), the ivy bee, has been observed to form small knots of males when competing for females. A coloured photograph of a small group is shown in Moenen (2005). Other species of the genus also exhibit mating clusters. They include *Colletes cunicularius* (Linn.) according to Larsson & Tengo